

## **The Pteridophytes of the Knuckles Region**

by

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(With two text figures)

The Knuckles region constitutes a mountain mass lying to the North-East of Kandy (Fig. 1). It is a part of the central highlands of Ceylon but is separated from the main massif by the valley of the Mahaveliganga. Because of its geographical position and its rugged nature it exhibits a very wide range of habitats and a correspondingly rich and varied flora. The major part of this region, however, has no roads or even foot-paths and very little is known about its fauna and flora. In 1956 the Ceylon Natural History Society and the Ceylon Geographical Society sent a joint expedition to make a preliminary study of the Natural History of the area. The party left Dehigolla estate (Fig. 2) on the morning of 15th. August along the P. W. D. road to Corbet's gap (4,000 ft.). From there it followed a regular path in the Heenganga valley and reached Mimure that evening. It spent three days at Mimure and during this period collections were made from the Mimure area and from the Lakaigala and the Nitre Cave regions. On the 20th the party left Mimure and climbed up the ridge traversing the valley of the Mimure Oya along a trace blazed by an advance party and it camped in a sheltered valley at an elevation of about 4,000 ft. situated to the west of Kalupahana peak. For the next three days collections were made from this region and on the 24th morning the party left Kalupahana camp, crossed the Selvakanda ridge (5,000 ft.) and climbed down to the Bambrella tea estate (4,000 ft.). The entire route covered about 35 miles, traversing an area of about 40 sq. miles, (for details of expedition see Cooray—1958). In this paper a list of the Pteridophytes collected by the author during this expedition is given.

### **Physical features, Climate and Soils.**

The Knuckles peak lies approximately near the region of 80° 48.5'E. longitude and 7° 24' N. latitude. From this region the Knuckles ridge runs in a North-Westerly direction, and it covers an area of about 80 square miles. The main ridge has an elevation of about 5,000 ft. with the highest peaks at Kalupahana (5,341 ft.), Knuckles (6,142 ft.) and Gombaniya (6,248 ft.). On the South-Western side it slopes steeply down to about 2,000 ft. to the Kandy plateau. On the North-Eastern side the slope is even steeper and it drops to about 1,000 ft. to the dry zone plains (Fig. 1).

The rocks covering the major part of this area are highly metamorphosed Pre-cambrian sediments of the Khondalite series. A band of crystalline limestone overlies the Nitre Cave region (Cooray—1958). The region is characterised by numerous east-facing scarps and gentle westerly dipping dip slopes.

The soils are mainly laterites or are of the lateritic type, and in many places appeared to be very shallow especially over the dip slopes. In general they are well drained but in the Selvakanda plateau on the ridge itself there were some areas with a waterlogged soil. In the undisturbed forest soils the humus content was fairly high.

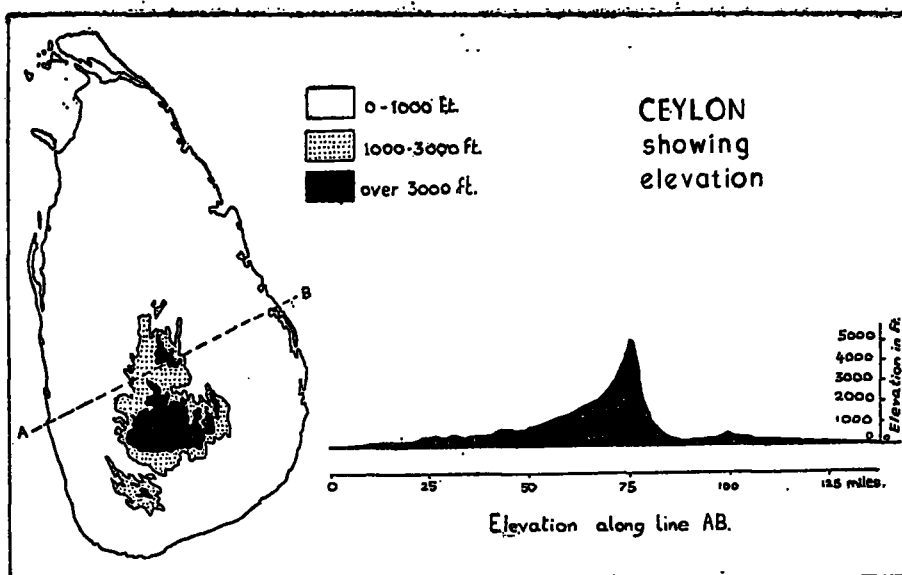


Figure 1. Ceylon, showing elevation.

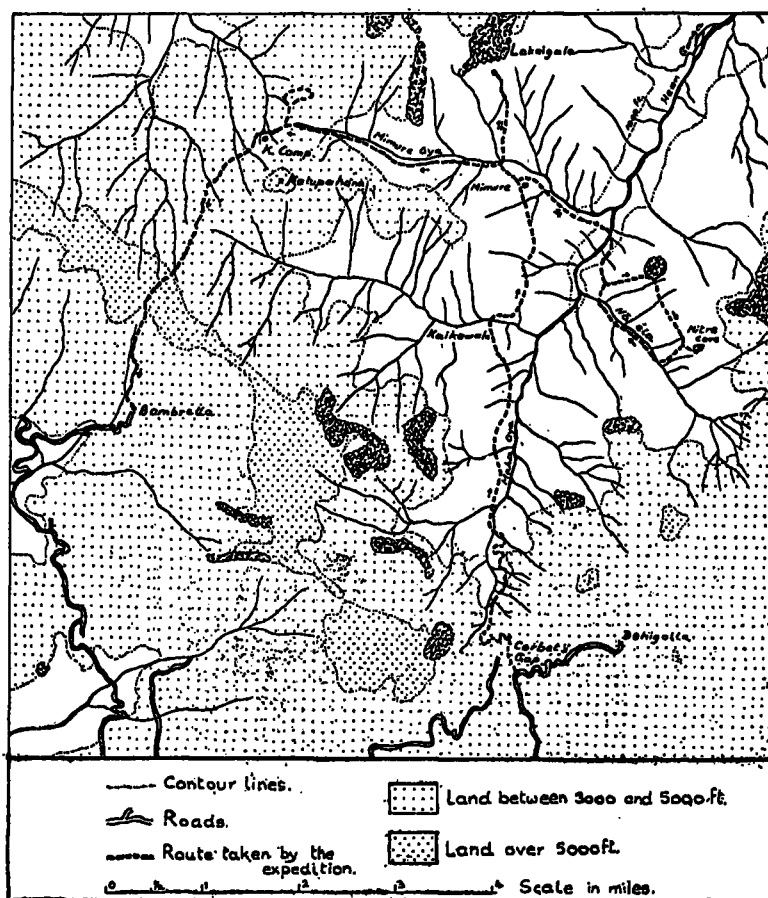


Figure 2. Map showing route taken by the expedition

The Knuckles ridge intercepts the prevailing winds almost at right angles. From about May to August the South-West Monsoon brings heavy rain to the Western slopes and to the top of the ridge, and it passes as a dry desiccating wind down the Eastern slopes to the plains below. From about October to January the North-East Monsoon brings heavy rain to the entire area. The Eastern slopes thus receive rain only seasonally whilst the Western slopes and the ridge receive rain almost right through the year. Another noteworthy feature is the fact that the ridge is exposed to strong winds during both monsoons.

No continuous temperature or relative humidity records are available from any station in this region. On calculations based on the elevations the average temperature at Mimure (1,100 ft.) should be over 80°F and that at Kalupahana camp (4,000 ft.) about 65°C. According to measurements made by a member of the expedition between 17th and 19th August 1956 at the Mimure school the temperature ranged from 76°F to 90°F and the Relative Humidity from 70 to 90 percent. Between the 21st and 23rd August 1956 at the Kalupahana camp which was in a sheltered valley at about 4,000 ft. the temperature ranged from 62° to 70°F and the relative humidity from 70 to 90 percent (Rosayro—1958). The measurements at Mimure were made during the dry season and one would expect at this station a somewhat lower temperature and a higher relative humidity during the rainy season. At Kalupahana however the seasonal fluctuations in the temperature and the relative humidity are probably very small.

#### Distribution of Vegetation Types.

Forests form the climax vegetation over almost the entire area. In some places the forests have been cleared for cultivation purposes. Some of these clearings, especially those on a part of the Western slopes of the Knuckles ridge, a part of the area to the North-East of Corbet's gap, and the region near the villages of Kaikawela, Mimure etc., are still under cultivation. Others have been abandoned and are now covered with shrub or low jungle or have been transformed into patana grasslands by grazing and periodical firing.

The major part of the ridge and the upper portion of the Eastern slopes however are still under natural forest—and this forms one of the few patches of virgin vegetation still left in Ceylon. An account of the vegetation types in this area has been given by Rosayro (1958). The following forest types can be recognised :—

- (i) Lowland Tropical Wet Semi-Evergreen Forest,
- (ii) Sub-montane Tropical Semi-Evergreen Forest,
- and (iii) Montane Tropical Wet Evergreen Forest.

The first type covers the Heen-Ganga valley upto an elevation of about 1,500 ft. The general vegetation is somewhat similar to that of the "Intermediate Zone" lying between the typical Wet Lowlands of the South Western part of Ceylon and the Dry Zone Lowlands of the North and East. In certain places along the banks of the Heen-Ganga the vegetation shows a very luxuriant growth with the dominant *Vitex pinnata* L. reaching a height of about 60 ft. Many Wet Evergreen forest species are present here but no Dipterocarps were observed. In the drier areas the vegetation is somewhat similar to that of the "Dry Mixed Evergreen Forests".

The Sub-montane Tropical Semi-Evergreen forest covers the Eastern slopes of the Knuckles ridge from 1,500 ft. to about 3,500 ft. and it forms a broad ecotone between the first type and the montane forest. At the lower elevations this has more or less the same species as the forests of the first type. Higher up however species of *Garcinia*, *Carallia*, *Calophyllum*, *Syzygium*, *Litsea*, *Neolitsea* etc., appear and become progressively more and more common until in the montane zone these species become dominant. With increasing elevation however the heights of the trees gradually decrease and on the plateau i.e. at about 5,000 ft. certain areas are covered by a "Elfin Forest" which is locally called "*Koratuwa*" with trees about 20 ft. or less in height, whilst others are covered with a "Pigmy Forest" (locally called *maratuwas*) where the trees are only about a yard in height. In addition to these the plateau has a few very small areas—(*madittas*) with an impeded drainage. These areas are covered with grasses along with certain plant species characteristic of the wet patana grasslands. This appears to be a natural edaphic climax in contrast to the other patanas in this region, which all appear to be man-made.

The Knuckles region thus shows most of the major vegetation types of the island and in a relatively small area carries, as one would expect, a fairly representative sample of the inland flora of the island. In the course of the ten-day expedition over one third of the total number of species of pteridophytes which have been recorded from the island were collected. A more detailed study of the area would undoubtedly reveal many more. Of the ferns collected very few were found in the lowland forests. The ferns common here were those normally present in the "Dry Zone" viz. *Pteris quadriaurita*, *P. ensiformis*, *Cheilanthes mysurensis*, *Hemionitis arifolia*, *Adiantum caudatum*, *Quercifilix zeilanica*, and *Drynaria quercifolia*. In wetter places near rivers and streams *Blechnum orientale*, *Angiopteris evecta*, *Cyclosorus* spp., and *Tectaria* spp. were present. *Azolla pinnata* was found in a paddy field at Mimure. On the cultivated land and along the sides of the foot-paths there were a few plants of *Lygodium flexuosum*, *Nephrolepis hirsutula*, and *Pityrogramma calomelanos*. In a village garden a single plant of what looked like a young *Cyathea walkerae* was found.

The forest on the lower slopes was also relatively poor in ferns and fern allies. It had more or less the same species as the lowland forest but in addition to them in wetter places near streams or on stream beds there were species of *Rumohra*, *Ctenitis*, *Egenolfia*, *Asplenium* and *Pyrrosia*.

As one climbed up the eastern slopes of the Knuckles ridge a marked change in the vegetation was noticeable at about 3,500 ft. At about this level the ground flora suddenly became very rich in mosses and ferns. Epiphytic species appeared first at the base of the trees and with increasing elevation epiphytes were seen to be present higher and higher up the stems till in the montane forest some trees were almost completely covered with them.

My thanks are due to Mr. J. E. Dandy for providing me with facilities to work in Botany Department of British Museum Natural History, and to the late Mr. A. H. G. Alston and Mr. J. A. Crabbe of the British Museum, and to Dr. W. A. Sledge of the University of Leeds for their assistance in the identification of certain specimens,

## LIST OF SPECIES

(The number written in brackets in italics against locality refers to the author's collection number).

## PSILOTACEAE

1. **Psilotum nudum** (L.) Griseb., in Abh. Ges. Wiss. Götting. 7:278 (1857).  
*P. triquetrum* Sw., Syn. Fil. 187 (1806);—Bak., Handb. Fern Allies: 30 (1887).  
Nitre Cave (372). Attached to a rock face near cave, pendent.  
Kalupahana (459). Epiphytic on trunk of a *Ficus* sp. at a height of about 40 ft.  
Both plants were quite large with adult shoots over 40 cm. in length.

## LYCOPODIACEAE

2. **Lycopodium phyllanthum** Hook & Arn., Bot. Beech: 103 (1841); —Bak., l.c. 22.  
Kalupahana (377). Epiphytic.
3. **L. cernuum** L., Sp. Pl. 2:1103 (1753); —Bak., l.c. 23.  
Selvakanda plateau (401). Terrestrial on boggy soil in a *maditta*.
4. **L. serratum** Thunb., Fl. Jap. 341, t. 38 (1784); —Bak., l.c. 12.  
Selvakanda plateau (393). Terrestrial in Elfin forest near a small stream.
5. **L. carolinianum** L., Sp. Pl. 2:1104 (1753); —Bak., l.c. 28.  
Selvakanda plateau (386). Terrestrial on boggy soil in a *maditta*.

## SELAGINELLACEAE

6. **Selaginella involvens** (Sw.) Spring in Bull. Acad. Brux. 10:136 (1843); —Bak. l.c. 87; —Alston in Proc. Nat. Inst. Sci. Ind. 11:220 (1945).  
Kalupahana (419). Attached to rocks on forest floor.  
Between Kalupahana and Selvakanda ridge (399). Terrestrial.
7. **S. brachystachya** (Hook. & Grev.) Spring l.c. 232; —Bak., l.c. 113; —Alston l.c. 229.  
Kalupahana (418, 458). On rocks near a stream.  
Selvakanda plateau (406). On forest floor.
8. **S. brachystachya** var. *ornata* Spring; —Bak., l.c. 113.  
Between Kalupahana and Selvakanda plateau (408). Terrestrial.
9. **S. calostachya** (Hook. & Grev.) Alston in J. of Bot. 70:65 (1932).  
*S. zeylanica* Bak., l.c. 111.  
Between Kalupahana and Selvakanda plateau (382). Terrestrial.

## OPHIOGLOSSACEAE

10. **Botrychium daucifolium** Wall. ex Hook. & Grev., Icon. Fil. t. 161 (1829); —Bedd., Handb. Ferns Brit. Ind. 469 (1892).  
Kalupahana (430). On forest floor by the side of a stream. The plants collected were all in the vegetative condition.
11. **Ophioglossum pendulum** L., Sp. Pl. (ed. 2) 2:1518 (1763); —Bedd., l.c. 465.  
Kalupahana (417, 431). Epiphytic. Both plants had adventitious buds arising from the roots.

## MARATTIACEAE

12. *Angiopteris evecta* (Forst.) Hoffm. in Comm. Soc. Reg. Gott. 12:29. t. 5 (1796); — Bedd., l.c. 460.  
Mimure (362). On banks of Mimure Oya.  
Kalupahana (454). On forest floor.

## SCHIZAEACEAE

13. *Lygodium flexuosum* (L.) Sw. in Schrad. J. Bot. 1800 pt. 2:106 (1801); — Bedd., l.c. 457.  
Mimure (360). By the sides of a footpath in village area.

## GLEICHENIACEAE

14. *Dicranopteris linearis* (Burm. f.) Underw. in Bull. Torr. Bot. Club, 34:249 (1907).  
*Gleichenia linearis* (Burm.) Clarke; — Bedd., l.c. 4.  
Near Corbet's Gap. No specimens were collected. This plant was not seen anywhere in the Heenganga valley.

## HYMENOPHYLLACEAE

15. *Mecodium javanicum* (Spr.) Copel. in Philip. J. Sc. 67:20 (1938).  
*Hymenophyllum javanicum* Spr., Syst. Veg. 4:132 (1827); — Bedd., l.c. 32.  
Knuckles ridge, near Selvakanda plateau (489). Epiphytic.
16. *Microtrichomanes nitidulum* (v.d.B.) Copel., l.c. 67:37 (1938).  
Selvakanda plateau (490). Epiphytic.
17. *Gonocormus prolifer* (Bl.) Prantl, Hymen. 51 (1875); — Copel., l.c. 39.  
Kalupahana (483). Epiphytic.
18. *Meringium macroglossum* (v.d.B.) Copel., l.c. 41.  
Knuckles ridge between Kalupahana and Selvakanda plateau (495). Epiphytic.
19. *Meringium denticulatum* (Sw.) Copel., l.c. 42.  
Knuckles ridge near Selvakanda plateau (494). Epiphytic.
20. *Crepidomanes latealatum* (v.d.B.) Copel., l.c. 60.  
Kalupahana (484). Selvakanda plateau (491). Epiphytic.  
New record for Ceylon; previously recorded from India and Malaya.
21. *Selenodesmium obscurum* (Bl.) Copel., l.c. 81.  
Kalupahana (486). On rocks by the side of a stream.  
Selvakanda plateau (487). Terrestrial, near a streamlet.

## PTERIDACEAE

22. *Lindsaea decomposita* Willd., Sp. Pl. 5:425 (1810).  
*Schizoloma lobata* Bedd., l.c. 77.  
Kalupahana (479). On forest floor.
23. *Lindsaea orbiculata* (Lam.) Mett.; — Kuhn, Ann. Lugd. Bat. 4:279 (1869); — Bedd., l.c. 75.  
Knuckles ridge between Kalupahana and Selvakanda plateau (383); on forest floor.



24. **Lindsaea cultrata** (Willd.,) Sw., Syn. Fil. 119 (1806); —Bedd., l.c. 72.  
Kalupahana (461). On stream banks.
25. **Sphenomeris chusana** (L.) Copel., in Bishop Mus. Publ. 59:69 (1929).  
*Stenoloma chinensis* Bedd., l.c. 70.  
Kalupahana (471). On open banks and vertical rock faces.
26. **Pteridium aquilinum** (L.) Kuhn, v. Deck. Reis. 3/3, Bot. 11 (1879).  
*Pteris aquilina* L., Sp. Pl. 2:1075 (1753); —Bedd., l.c. 115.  
No specimens collected. Common in patanas near Corbet's gap and Kalupahana. Also seen in Bambrella Estate area on Western side of Knuckles ridge.
27. **Pteris quadriaurita** Retz., Obs. Bot. 6:38 (1791); —Bedd., l.c. 110.  
Mimure (359, 361); Kalupahana (439, 475). Terrestrial, very common throughout the region.
28. **Pteris quadriaurita** var. *ludens* Bedd., l.c. 111.  
Near Kaikawala on footpath between Corbet's gap and Mimure (357).
29. **Pteris biaurita** L., Sp. Pl. 2:1076 (1753).  
*Campteria biaurita* Bedd., l.c. 116.  
Kalupahana (438). Terrestrial. In shady places near camp.
30. **Pteris ensiformis** Burm., Fl. Ind. 230 (1768); —Bedd., l.c. 107.  
Mimure (363). On an earth bank by the side of a footpath.
31. **Cheilanthes mysurensis** Wall. ex Hook., Sp. Fil. 2:94 (1852); —Bedd., l.c. 89.  
No specimens collected. Fairly common in drier parts of Heenganga valley in sheltered places near the base of larger rocks.
32. **Aleuritopteris farinosa** (Forsk.) Fee, Gen. Fil. 153 (1850–1852).  
Along footpath from Corbet's gap to Mimure near the place where it branches off to St. Martin's Estate.
33. **Hemionitis arifolia** (Burm.) Moore, Ind. Fil. 114 (1859); —Bedd., l.c. 413.  
Fairly common in the drier parts of Heenganga Valley.
34. **Pityrogramma calomelanos** (L.) Link, Handb. Gew. 3:20 (1833).  
Common on rocks near Bambrella Estate. A few plants were also seen in the Mimure village.
35. **Adiantum caudatum** L., Mantissa 308 (1771); —Bedd., l.c. 83.  
Mimure (358). A common fern on earth banks and sometimes even on forest floor in the drier parts of the Heenganga valley. In the wetter regions it was found attached to rocks.
36. **Adiantum capillus-veneris** L., Sp. Pl. 2:1096 (1753); —Bedd., l.c. 84.  
On the rocks above Bambrella Estate.
37. **Adiantum hispidulum** Sw., Schrad. J. 1800/2:82 (1801); —Bedd., l.c. 86.  
Kalupahana (414). On shady earth banks.

## DAVALLIACEAE

38. *Araiostegia pulchra* (D. Don) Copel., Philip. J. Sci. 34:241 (1927).  
*Leucostegia pulchra* Bedd., l.c. 52.  
Knuckles ridge between Kalupahana and Selvakanda plateau (374). On rocks and tree trunks.
39. *Araiostegia hymenophylloides* (Bl.) Copel., Philip. J. Sc. 34:241 (1927).  
*Leucostegia hymenophylloides* Bedd., l.c. 54.  
Kalupahana (376, 422). Epiphytic or on rocks.
40. *Humata vestita* (Bl.) Moore, Index XCII (1857).  
Kalupahana (411, 466, 469). On rocks near streams.
41. *Oleandra musifolia* (Bl.) Pr. Epim. 42 (1849); —Bedd., l.c. 287.  
Kalupahana (468). In a gap in forest attached to a fallen tree trunk.
42. *Nephrolepis hirsutula* (Forst.) Pr., Tent. Pterid. 79 (1836).  
Kaikawala (351); along footpath between Kaikawala and Mimure (349). Near Nitre Cave (373). Terrestrial or attached to rocks in open places.
43. *Nephrolepis cordifolia* (L.) Pr., Tent. Pterid. 79 (1836); —Bedd., l.c. 282.  
Kalupahana (432). Between Kalupahana and Selvakanda ridge (402). Terrestrial, in open places.
44. *Arthropteris oblitterata* (R. Br.) J. Sm., Cat. Cult. Ferns 62 (1827).  
*Nephrolepis ramosa* Bedd., l.c. 284.  
Kalupahana (424). Epiphytic on trunks of forest trees.

## CYATHEACEAE

45. *Cyathea walkerae* Hook. Icon. Pl. t. 647 (1844).  
*Amphicosmia walkerae* Bedd., l.c. 8.  
Kalupahana (474). A common tree fern in the montane forest.
46. *Gymnosphaera glabra* Bl. Enum. 242 (1828).  
*Alsophila glabra* Hook., Sp. Fil. 1:51 (1844); —Bedd., l.c. 14.  
Mimure (367). On waste land near a spring.

## ASPIDIACEAE

47. *Hypodematium crenatum* (Forsk.) Kuhn, v. Deck. Reis. Bot. 3/3:37 (1879).  
*Lastrea crenata* Bedd., l.c. 258.  
Nitre Cave (371). On limestone rock near mouth of cave.
48. *Polystichum auriculatum* (L.) Pr., Tent. 83 (1836); —Bedd., l.c. 203.  
Kalupahana (446, 447). On forest floor.
49. *Polystichum aculeatum* (L.) Schott, Gen. Fil. ad t. 9 (1834); —Bedd., l.c. 207.  
In patches of forest along footpath from Corbet's gap to Kaikawala, at an elevation of about 2,000 to 2,500 ft.
50. *Rumohra carvifolia* (Kunze) Ching in Sinensia 5:50 (1934).  
*Lastrea conifolia* sensu Bedd., l.c. 230.  
Kalupahana (428, 470). On forest floor.



51. **Rumohra aristata** (Forst.) Ching in Sinensia 5:50 (1934).  
*Lastraea aristata* Moore, Ind. Fil. 85 (1858);—Bedd., l.c. 229.  
 In forests below Corbet's gap (356). Kalupahana (440).  
 On forest floor.
52. **Egenolfia appendiculata** (Willd.) J. Sm., Ferns. Brit. & Foreign III (1886).  
*Polybotrya appendiculata* J.Sm., J. of Bot. 4:150 (1841);—Bedd., l.c. 424.  
 Lakaigala (348, 370). On bed of a dried up stream.  
 Kalupahana (426). On forest floor.
53. **Elaphoglossum hirtum** (Sw.) C. Chr., Ind. Fil. 308 (1905).  
*E.squamosum* J.Sm., in J. of Bot. 4:148 (1841);—Bedd., l.c. 420.  
 Kalupahana (420). On mossy rocks and tree trunks.
54. **Elaphoglossum laurifolium** (Thouars) Moore, Ind. Fil. XVI (1857).  
*E.latifolium* sensu Bedd., l.c. 416.  
 Kalupahana (423). In forest between Kalupahana and Selvakanda ridge (389, 390). Epiphytic.
55. **Dryopteris hirtipes** (Bl.) Kuntze, Rev. Gen. Pl. 2:813 (1891).  
*Lastraea hirtipes* Bedd., l.c. 232.  
 Kalupahana (450, 452). On forest floor.
56. **Dryopteris obtusissima** (Mett.) Christ, J. de Bot. 21:231 (1908).  
*Lastrea sparsa* var. *obtusissima*, Bedd., l.c. 254.  
 Between Kalupahana and Selvakanda ridge (405). Terrestrial.
57. **Dryopteris sparsa** var. *deltoidea* (Bedd.) C. Chr., Ind. Fil. 376 (1906)  
*Lastraea sparsa* var. *deltoidea* Bedd., l.c. 254.  
 Knuckles ridge at about 4,500 ft. (398). Terrestrial.
58. **Ctenitis rufescens** (Bl.) Copel., Gen. Fil. 125 (1947).  
*Phegopteris rufescens* Bedd. l.c. 293.  
 Kalupahana (443, 480). On forest floor.
59. **Ctenitis recedens** (J. Sm.) Copel., Gen. Fil. 124 (1947).  
*Lastraea recedens* J.Sm., Moore Gard. Chr. 1855:708;—Bedd., l.c. 260.  
 Kalupahana (437). On forest floor.
60. **Ctenitis dissecta** Copel., Gen. Fil. 124 (1947).  
*Lastraea dissecta* Carr. Fl. Vit. 360 (1873);—Bedd., l.c. 260.  
 Kalupahana (436). On a rock face near a stream.
61. **Tectaria polymorpha** (Wall.) Copel., Philip. J. Sci. 2c:413 (1907).  
*Aspidium polymorphum* Wall. in Hook. Sp. Fil. 4:54 (1862);—Bedd., l.c. 218.  
 Kaikawela (355). On river banks.  
 Mimure (350). On banks of an irrigation channel.  
 Kalupahana (434, 435, 477). On walls of a rock cave and on rocks near a stream.
62. **Tectaria macrodonta** (Fee) C. Chr., Ind. Fil. Suppl. 3:181 (1934).  
*Aspidium cicutarium* Bedd., l.c. 220.  
 Mimure (365). On rocks on banks of Mimure-Oya.

63. *Quercifilix zeilanica* (Houtt.) Copel., Philip. J. Sci. 37:409 (1928).  
*Gymnopteris quercifolia* sensu Bedd., l.c. 432.  
 Mimure (346). On earth bank along a footpath.
64. *Lastraea flaccida*, Moore, Ind. Fil. 92 (1858); —Bedd., l.c. 244.  
 Knuckles ridge (392). On forest floor a little above Kalupahana.
65. *Lastraea ciliata*, Hook., Kew. J. of Bot. 9:335 (1857). *non* Lichm. 1849, *nec* Presl. (1849);—  
*L. calcarata* var. *ciliata* Bedd., l.c. 235.  
 Kalupahana (457). By the sides of a stream.  
 (If this species is to be retained in the genus *Lastraea* a new name will have to be given as *L. ciliata* Hook. is an invalid name).
66. *Cyclosorus arbuscula* (Willd.) Ching in Copel., Gen. Fil. 142 (1947).  
*Nephrodium arbuscula* Desv. Prod. 253 (1827); —Bedd., l.c. 276.  
 Mimure (368). On shady banks along Mimure Oya.
67. *Cyclosorus latipinna* (Hook.) Tardieu-Blot in Not. Syst. 7:73 (1938).  
 Mimure (369). On banks of the Mimure-Oya.
68. *Cyclosorus unitus* (L.) Ching in Bull. Fan Mem. Inst. Bot. 8:192 (1938).  
*Nephrodium cucullatum* Bedd., l.c. 270.  
 Mimure and Kaikawela. On damp soil near water channels and springs.
69. *Diplazium sylvaticum* (Bory) Sw., Syn. Fil. 92 (1806); —Bedd., l.c. 177.  
 Kalupahana (441, 442). On forest floor.
70. *Diplazium polypodioides* Bl., Enum. Pl. Jav. 2:194 (1828); —Bedd., l.c. 184.  
 Kalupahana (473). On forest floor.
71. *Diplazium dilatatum* Bl., Enum. Pl. Jav. 2:194 (1828).  
 Kalupahana (425). On forest floor.

## BLECHNACEAE

72. *Blechnum orientale* L., Sp. Pl. 2:1077 (1753); —Bedd., l.c. 132.  
 Kalupahana (476). On banks of stream near camp. Also found in damp open places near Mimure.
73. *Doodia dives* Kunze in Bot. Zeit. 1848:144 (1848); —Bedd., l.c. 137.  
 Kalupahana (456, 481). On forest floor. The plants were very large compared to those in Hakgala area and had stipes about 25 cm. long and leaf blades about 30 cm. long.

## ASPLENIACEAE

74. *Asplenium wightianum* Wall. ex Hook., Sp. Fil. 3:105, t. 167 (1860); —Bedd., l.c. 146.  
 Kalupahana (412, 421). On forest floor.
75. *Asplenium tenerum* Forst., Prodr. 80 (1786); —Bedd., l.c. 147.  
 Kalupahana (478). On tree trunks and on rocks by the side of streams.

76. *Asplenium normale* Don, Prodr. Fl. Nepal. 7 (1825); —Bedd., l.c. 144.  
Kalupahana (427, 433). Knuckles ridge at about 5,000 ft. On rocks, forest floor, or as a low level epiphyte.
77. *Asplenium formosum* Willd., Sp. Pl. 5:329 (1810); —Bedd., l.c. 152.  
Along footpath from Corbet's Gap to Kaikawela at an elevation of about 2,500 ft. (346). On forest floor.
78. *Asplenium unilaterale* Lam., Encycl. 2:305 (1786); —Bedd., l.c. 152.  
On road to Kaikawela (345); Kalupahana (413). On forest floor or on rocks.
79. *Asplenium cheilosorum* Kunze in Mett., Aspl. 133, No. 104, t. 5, f 12-13. (1859).  
*A. heterocarpum* Wall. Cat. (nom. nud.); —Bedd., l.c. 153.  
Kalupahana (472). Epiphytic or on rocks.
80. *Asplenium affine* Sw. in Schrad. Journ. 1800:56 (1801).  
Kalupahana (415, 444, 445, 453). On forest floor.
81. *Asplenium caudatum* Forst., Prodr. 80 (1786).  
Knuckles ridge, at about 4,500 ft. (403). Epiphytic.
82. *Pleopeltis amaurolepida* Sledge in Bull. Brit. Mus. (Nat. Hist.) 2 (5):136 (1960).  
Knuckles ridge at about 4,000 ft. (384). Epiphytic.
83. *Pleopeltis nuda* Hook., Exot. Fl. I:t. 63 (1823);  
*Pleopeltis linearis* sensu. Bedd., l.c. 346.  
St. Martin's Estate (353, 354); Kalupahana (416). Epiphytic or on rocks.
84. *Belvisia revoluta* (Bl.) Copel., Gen. Fil. :192 (1947);  
*Gymnopteris spicata* sensu Bedd., l.c. 432.  
Kalupahana (462). Epiphytic on tree trunk at a height of about 30 ft.
85. *Pyrrosia mollis* (Kunze) Ching in Bull. Chin. Bot. Soc. 1:53 (1935).  
*Niphobolus fissus* sensu Bedd., l.c. 330.  
St. Martin's Estate (352). On rocks.
86. *Leptochilus decurrens* Bl., Enum. Pl. Jav. 2:206 (1828).  
*Gymnopteris variabilis* (Hook.) Bedd., l.c. 429.  
Knuckles ridge (400, 448, 449). On rocks along river banks and stream beds.
87. *Drynaria quercifolia* (L.) J. Sm. in Hook. J. Bot. 3:398 (1841); —Bedd., l.c. 341.  
Mimure, epiphytic on a tree in school premises; (no specimen collected).
88. *Crypsinus montanus* Sledge in Bull. Brit. Mus. (Nat. Hist.) 2 (5):145 (1960).  
*Pleopeltis hastata* Bedd., l.c. 362.  
Knuckles ridge at about 4,500 ft. (404). Epiphytic.
89. *Grammitis zeylanica* Fée, Gen. Fil. 234 (1852).  
*Polypodium zeylanicum* (Fée) Mett. in Bedd., l.c. 303.  
Knuckles ridge at about 5,000 ft. (381). Epiphytic.

90. *Grammitis medialis* (Bak.) Sledge in Bull. Brit. Mus. (Nat. Hist.) 2 (5):149 (1960).  
*Polypodium parasiticum* sensu Bedd., l.c. 302.  
 Knuckles ridge at about 5,000 ft. (380). Epiphytic.
91. *Grammitis reinwardtii* Bl., Enum. Pl. Jav. 2 add.: [2] (1828).  
*Polypodium hirtellum* sensu Bedd., l.c. 305.  
 Knuckles ridge above Kalupahana, (375, 397). Epiphytic.
92. *Calymmodon cucullatus* (Nees & Bl.) C. Presl, Tent. Pterid. 204 (1836).  
*Polypodium cucullatum* Nees & Bl. in Bedd., l.c. 307.  
 Kalupahana (429). Knuckles ridge near Selvakanda plateau (385, 410). On rocks and tree trunks.
93. *Ctenopteris subfalcata* (Bl.) Kunze in Bot. Zeit. 6:120 (1848).  
*Polypodium subfalcatum* Bl. in Bedd. l.c. 314.  
 Kalupahana (409). Epiphytic.
94. *Ctenopteris repandula* (Mett.) C. Chr. & Tard. in Lecomte, Flor. Gener. Indo-Chine 7(2):533 (1941).  
*Polypodium repandulum* Mett. in Bedd., l.c. 313.  
 Kalupahana (465). Epiphytic.
95. *Prosaptia obliquata* (Bl.) Mett. in Reise Oesterr. Fregatte Novara, Bot. 1:214 (1870).  
*Polypodium obliquatum* Bl. in Bedd., l.c. 311.  
 Kalupahana (460, 463); Knuckles ridge below Selvakanda plateau (396). Epiphytic.
96. *Prosaptia contigua* (Forst. f.) C. Presl, Tent. Pterid. 166 (1836). Bedd., l.c. 56.  
 Knuckles ridge (394). On rocks and tree trunks.
97. *Antrophyum plantagineum* (Cav.) Kaulf., Enum. :197 (1824); —Bedd., l.c. 403.  
 Kalupahana (451); Knuckles ridge above Kalupahana camp (387). Epiphytic on rocks.
98. *Vittaria elongata* Sw., Syn. Fil. 109, 302 (1806) —Bedd., l.c. 404.  
 Kalupahana (464, 467). Epiphytic.
99. *Azolla pinnata* R. Br., Prodr. Fl. Nov. Holl. 167 (1810).  
 Mimure (488) Aquatic plant, in paddy field.

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